

Overview and Demo of CMCS Premixed Turbulent Flames Portlet

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CMCS has created a portlet for your working group



Folders for 3 flame types

The screenshot shows the CMCS Data Browser interface. On the left is a sidebar with a flame image and navigation links: Home, Data Browser, Announcements, Schedule, Chat, and Discussion. The main content area is titled 'Premixed Turbulent Flames Working Group : Data Browser' and shows the 'Current Data Server Is: https://cmcs.ca.sandia.gov:9443'. Below this is a file browser showing the path '/sam/files/projects/Premixed_Turbulent_Working_Group/'. The interface is divided into two panels: 'Folders' and 'Folder Contents'. The 'Folders' panel lists a tree structure: sam > files > projects > Premixed_Turbulent > Annotated templat > Envelope Flames E > Oblique Flames Ex. The 'Folder Contents' panel shows a list of resources under the heading 'Resources (7)'. Three folders are circled in the list: 'Annotated templates', 'Envelope Flames Experimental Database', and 'Oblique Flames Experimental Database'. A yellow callout bubble with the text 'Folders for 3 flame types' points to these three circled folders.

Collaboratory for Multi-Scale Chemical Science

My Workspace | ALS Low Pressure Flames | Active Thermochemical Tables for Guest

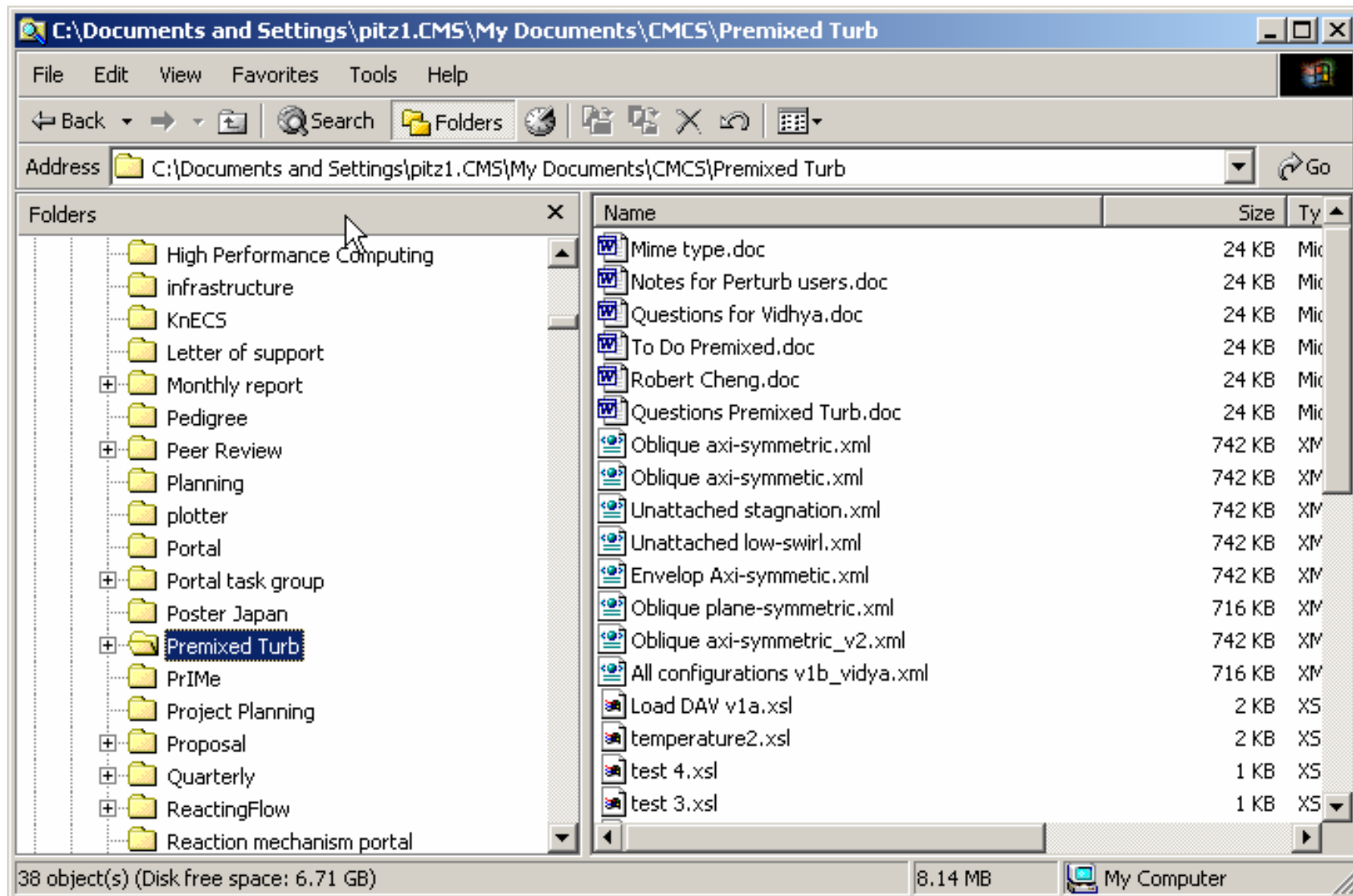
Premixed Turbulent Flames Working Group : Data Browser

Current Data Server Is: <https://cmcs.ca.sandia.gov:9443>

/sam/files/projects/Premixed_Turbulent_Working_Group/

Folders	Folder Contents
Folder icon sam	Icons for file operations (upload, download, etc.)
Folder icon files	
Folder icon projects	
Folder icon Premixed_Turbulent	
Folder icon Annotated templat	Resources (7)
Folder icon Envelope Flames E	<input type="checkbox"/> Annotated templates
Folder icon Oblique Flames Ex	<input type="checkbox"/> Envelope Flames Experimental Database
	<input type="checkbox"/> Oblique Flames Experimental Database
	<input type="checkbox"/> Templates
	<input type="checkbox"/> Unattached Flames Experimental Database

MS Explorer® on a PC



Excel® worksheet from which metadata is extracted



Experimental Conditions

Inlet Flow

mean flow velocity $\langle U \rangle$ (m/s)	3
rms velocity u' (m/s)	0.21
Turbulent Reynolds number	40.00
longitudinal integral length scale, l_x (m)	0.0035

Combustion

fuel (use chemical symbols all capital letters e.g. CH ₄ C ₂ H ₄ etc)	CH ₄
oxidizer	air
Φ	0.70
other combustion parameters (e.g. dilution)	

Ambient

inlet pressure (pa) use 101325 for atmospheric	101325
inlet temperature (K)	298
open or enclosed	open

Regime Diagram Parameters at inlet

u'/S_L (rms velocity over laminar flame speed)	1.07
l_x/d_L (longitudinal integral length scale over laminar flame thermal thickness)	44
Damkholer number Da based on laminar flame thermal thickness	33.7
Karlovitz number Ka based on laminar flame thermal thickness	0.17
URL to retrieve Table of experimental conditions	

The metadata extraction is done by converting the Excel® file to XML:



Excel®:



XML:

	A	B
2	Flame Type	Oblique-flames (axi-symmetric)
3	Name of Data Guardian	Robert Cheng
4	E-mail of Data Guardian	RKCheng@lbl.gov
5	URL to retrieve data	http://eetd.lbl.gov/aet/combustion/cmcs/Data_Retrieval.html
6	Data Source (Paper Citation)	1. Shepherd, I.G. and R.K. There are four flames in this set named SWF26-29 in these papers
7	Short Description	separate multi-entry by comma e.g. 5,6,35,10,0 for <U>
8	Experimental Conditions	
9	Inlet Flow	
10	mean flow velocity <U> (m/s)	2,5,5,0,7,5,10,0
11	rms velocity u' (m/s)	0,5,1,22,1,9,2,2
12	Turbulent Reynolds number	481,117,318,272,115
13	longitudinal integral length scale, l _x (m)	0.015

```
<?xml version="1.0"?>
```

```
<workbook>
```

```
<worksheet name="Sheet1">
```

```
<row number="0">
```

```
<col number="0">Important note: search algorithm is case sensitive.  
Please be consistent by using Y,N, C2H4, CH4, OH-PLIF etc in your entries</col>
```

```
</row>
```

```
<row number="1">
```

```
<col number="0">Flame Type</col>
```

```
<col number="1">Oblique-flames (plane-symmetric)</col>
```

```
</row>
```

```
<row number="2">
```

```
<col number="0">Name of Data Guardian</col>
```

```
<col number="1">Robert Cheng</col>
```

The metadata is extracted from the XML

XML:

```
<?xml version="1.0"?>
<workbook>
  <worksheet name="Sheet1">
    <row number="0">
      <col number="0">Important note: search algorithm is case sensitive.
Please be consistant by using Y,N, C2H4, CH4, OH-PLIF etc in your entries</col>
    </row>
    <row number="1">
      <col number="0">Flame Type</col>
      <col number="1">Oblique-flames (plane-symmetric)</col>
    </row>
    <row number="2">
      <col number="0">Name of Data Guardian</col>
      <col number="1">Robert Cheng</col>
    </row>
  </worksheet>
</workbook>
```



(XSLT
Translator)

Metadata extracted:

```
<?xml version="1.0" encoding="UTF-8"?>
<DAV:prop xmlns:DAV="DAV" xmlns:dc="http://purl.org/dc/elements/1.1/">
  <FlameType xmlns="http://purl.oclc.org/NET/pretrib/">Oblique-flames (plane-symmetric)</FlameType>
  <E-mail xmlns="http://purl.oclc.org/NET/pretrib/">Robert Cheng</E-mail>
</DAV:prop>
```

XSLT translator automatically extracts the metadata into the CMCS data storage:



Premixed Turbulent Flames Working Group : Data Browser

Current Data Server Is: <https://cmcs.ca.sandia.gov:9443>

Path: /sam/files/projects/Premixed_Turbulent_Working_Group/Excel test files

Resources (2) ▲	Author	Modified	Size	Notes
Up to parent folder				
LBNL_lowswirl_set_1_ver3b.xls	pitz	2006-07-18 23:04:17 GMT	31744	
LBNL_Plane-oblique_PNAS_set_1_ver3.:	pitz	2006-07-18 23:04:41 GMT	23552	

List of metadata stored:

FlameType
Oblique-flames (axi-symmetric)

Fuel
CH₄

InletPress
101325.0

InletTemp
298.0


XSLT translator can be modified by group.

User can use advance search form to search for spreadsheets:



CMCS Portal: Premixed Turbulent Flames Working Group - Netscape

File Edit View Go Bookmarks Tools Window Help

 Collaboratory for Multi-Scale Chemical Science [Help](#)

Query Configuration

Search Attribute	Value
Experimental Conditions	
Flame Attributes	
Flame Type	<input type="text"/>
Inlet Flow	
mean flow velocity (m/s)	<input type="text"/>
rms velocity u' (m/s)	<input type="text"/>
turbulent Reynolds number	<input type="text"/>
longitudinal integral length scale, l_x (m)	<input type="text"/>
Combustion	
fuel (use chemical symbols all capital letters e.g. CH ₄ C ₂ H ₄ etc)	<input type="text"/>
oxidizer	<input type="text"/>
equivalence ratio	<input type="text"/>
other combustion parameters (e.g. dilution)	<input type="text"/>
Ambient	
inlet pressure (pa) use 101325 for atmospheric	Greater Than: <input type="text"/> Less Than: <input type="text"/>
inlet temperature (K)	<input type="text"/> +/- <input type="text"/>
open or enclosed	<input type="text"/>
Regime Diagram Parameters at inlet	
u'/S_L (rms velocity over laminar flame speed)	<input type="text"/>
l_x/d_L (longitudinal integral length scale over laminar flame thermal thickness)	<input type="text"/>
Damkholer number Da based on laminar flame thermal thickness	<input type="text"/>
Karlovitz number Ka based on laminar flame thermal thickness	<input type="text"/>
Measurements	

Notes

Search [Advanced](#)

Bookmarks

Flame Attributes

Flame Type		oblique		
------------	--	---------	--	--

Inlet Flow

mean flow velocity (m/s)				
rms velocity u' (m/s)				
turbulent Reynolds number				
longitudinal integral length scale, lx (m)				

Combustion

fuel (use chemical symbols all capital letters e.g. CH4 C2H4 etc)				
oxidizer				
equivalence ratio				
other combustion parameters (e.g. dilution)				

Ambient

inlet pressure (pa) use 101325 for atmospheric	Greater Than:		Less Than:	
inlet temperature (K)			+/-	
open or enclosed				

Regime Diagram Parameters at inlet

u'/Sl (rms velocity over laminar flame speed)				
lx/dl (longitudinal integral length scale over laminar flame thermal thickness)				
Damkholer number Da based on laminar flame thermal thickness				
Karlovitz number Ka based on laminar flame thermal thickness				

Measurements

velocity at a point		<input type="checkbox"/>		
velocity at a plane		<input type="checkbox"/>		
scalar at a point or multi points		<input type="checkbox"/>		
scalar on a plane or multi-planes		<input type="checkbox"/>		

Analysis

- flame
- quasi-steady
- quasi-steady
- instability
- velocity

Exact Match: ☐ Search Type: AND



Datasheets found



Resources (2) ▲		Author	Modified	Size	Notes
/sam/files/projects/Premixed_Turbulent_Working_Group/Excel test files					
	LBNL_lowswirl_set_1_ver3b.xls	pitz	2006-07-18 23:04:17 GMT	31744	
	LBNL_Plane-oblique_PNAS_set_1_ver3.:	pitz	2006-07-18 23:04:41 GMT	23552	

Press on metadata icon

 **FlameType**
Oblique-flames (axi-symmetric)

Group members can be notified when new data is uploaded:



Premixed Turbulent Flames Working Group : Data Browser

Current Data Server Is: <https://cmcs.ca.sandia.gov:9443>

Path: /sam/files/projects/Premixed_Turbulent_Working_Group/Excel test files

Resources (3) ▲	Author	Modified
<input type="checkbox"/> Up to parent folder		
<input type="checkbox"/> Driscolls_Plane-envelope_case.xls	pitz	2006-07-18 23:25:18 GMT
<input type="checkbox"/> LBNL_lowswirl_set_1_ver3b.xls	pitz	2006-07-18 23:04:17 GMT
<input type="checkbox"/> LBNL_Plane-oblique_PNAS_set_1_ver3.:	pitz	2006-07-18 23:04:41 GMT

Email is sent when new data files are uploaded.

Current Subscriptions:

Subscriptions for Bill Pitz

- ☐ HCCI
- ☐ Large_Mechanisms
- ☐ Premixed_Turbulent_Working_Group
- ☐ HCCI_-_UM

New Delete Exit

Content of example notification email:



The following was **added** by Larry Rahn

 [CMCS_FinalReport_2006_07_21CMP-CLYlar.doc](#)

Appears in: https://cmcs.ca.sandia.gov:9443/sam/files/projects/CMCS_team/DOE Reports/Final Report and 2006 Accomplishments/

Date: Mon Jul 24 10:13:18 PDT 2006

This notification was generated by subscription "CMCS_team"

CMCS allows groups to define custom views of their data: (example, Basis Set Exchange public data)



Public Data Viewer

Public Data Viewer

Public Data

Molecular Scale
Basis Set

This is some short description about the entry, user interface for downloading and uploading Gaussian basis sets developed and maintained by the National Energy Research Laboratory (NERL) at the popular Basis Set Exchange (BSE) website. It continues to be maintained in the BSE only.

Public Data / Basis Set

This piece of text is contained in a html file that is saved in this example: [Show All Basis Sets](#) It is up to the data owner to decide what to show in the page. More examples listed below:

- [Show Verified Basis Sets Only](#)
- [Show AE Basis Sets](#)
- [Show ECP Basis Sets](#)

And it is also possible to filter the data by category, which consists of burning, combustion, turbulent flow, low pressure flame, etc.

Active Table
Another sub category
Another entry
Combustion
Turbulent Flow
Low Pressure Flame

Public Data Viewer

Public Data Viewer

Public Data / Basis Set / Show Verified Basis Sets Only (Total 304 Entries)

3-21G 2006-01-19 19:46:28 GMT

3-21G Split Valence Basis

Elements	Contraction	References
H - He: (3s)	-> [2s]	J.S. Binkley, J.A. Pople and ...

3-21G* 2006-01-19 19:46:28 GMT

3-21G* Split Valence + Polarization Basis

Elements	Contraction	References
H - He: (4s)	-> [3s]	J ...

To upload a file



Premixed Turbulent Flames Working Group : Data Browser

Current Data Server Is: <https://cmcs.ca.sandia.gov:9443>



Path: / [sam](#) / [files](#) / [projects](#) / [Premixed_Turbu](#)

Resources (4) ▲

Author



[Up to parent folder](#)



[Driscolls_Plane-envelope_case.html](#)

carmen

To upload a file



Premixed Turbulent Flames Working Group : Data Browser

Current Data Server Is: <https://cmcs.ca.sandia.gov:9443>



Select the file to upload:

File:

Browse...

Title:

(file name unless specified)

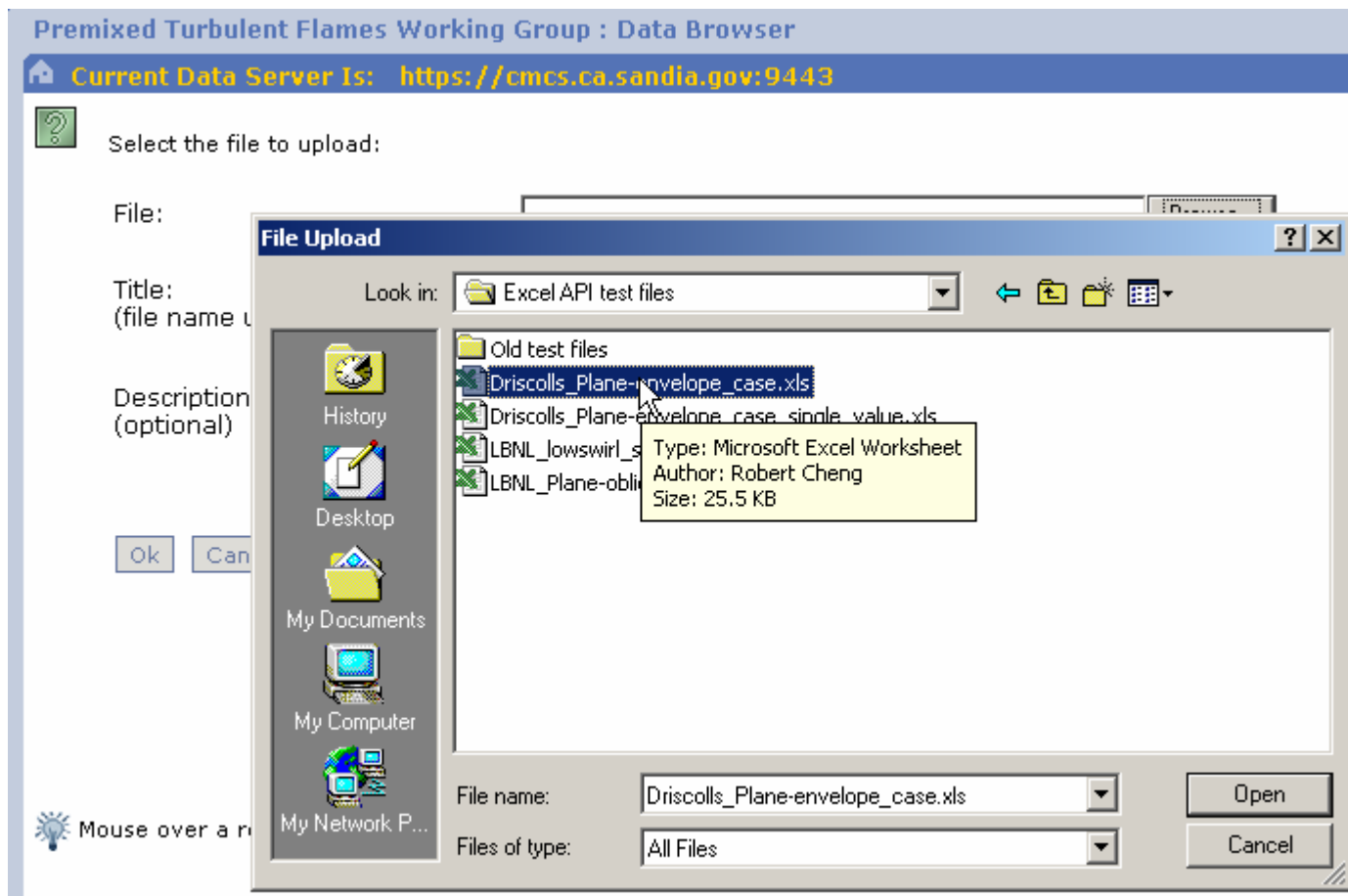
Description:

(optional)

Ok

Cancel

To upload a file




To upload a file



Premixed Turbulent Flames Working Group : Data Browser

Current Data Server Is: <https://cmcs.ca.sandia.gov:9443>

 Select the file to upload:

File:

Title:
(file name unless specified)

Description:
(optional)

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- Jared Chase, PNNL
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- Larry Rahn, Sandia

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